

### REMARKS

After entry of the amendments to claims 1 and 14, the claims pending in the subject application are 1 and 3-22. Reconsideration of claims 1 and 3-22 is respectfully requested based upon the amendments and remarks herein.

#### 35 USC §112 Rejections

Claims 1 and 14 were rejected under 35 USC §112, second paragraph for reasons of record at page 3 of the Office Action. Applicants have accordingly amended claims 1 and 14 by deleting the phrase “such as pollutants, organisms, and odors”. Such amendment does not change the scope of the claims, as the now-deleted text merely illustrated the element “contaminants”.

#### 35 USC §103 Rejections

Claims 1, 4-16, and 18-22 were rejected under 35 USC §103(a) as being unpatentable over Say et al. (US 5,790,934) in view of Owesen (US 5,891,399) for reasons of record stated at pages 4-6 of the Office Action. It is alleged in the Office Action that the differences between Say and the claims are “the wall-mounting of the device and the detailing of the co-catalyst.” Applicants respectfully traverse.

Say discloses contamination conversion by photocatalytic reactions at a catalytic surface induced by lamps illuminating the catalytic materials. However, contrary to the claimed apparatus and method, Say does not provide for the inclusion of water during the decontamination of air by such photocatalytic reactions, noting that such “species compet[e] for reactive sites” and suggesting that they thereby decrease the calculated efficiency (Col. 12, ln. 12). The apparatus and method of Say do not generate at least one oxidant selected from the group of hydro-peroxides, super-oxide ions and hydroxyl radicals, as called for in independent claims 1, 14, 19 and 22 herein.

This deficiency in Say is not provided by Owesen, which does not disclose the presence of catalytic surfaces, but rather relies on filters and UV light to destroy bacteria, viruses and other organisms.

Applicants traverse the Office Action allegation that it would have been obvious to modify the teachings of Say as shown by Owesen, whereby the Office Action cites *Gyurik*, *Fromson*, and *Newell* to support the proposition that the subject matter as a whole would have been obvious because the motive to make a specific structure is related to the properties or uses one skilled in the art would expect the structure to have. *In re Gyurik*, 596 F.2d 1012. *Fromson v. Advance Offset Plate*, 755 F.2d 1549. *In re Chester W. NEWELL* 891 F.2d 899. Both *Fromson* and *Newell* affirm the proposition that the critical inquiry is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination. *Fromson v. Advance Offset Plate*, 755 F.2d 1549, 1556. *In re Chester W. NEWELL* 891 F.2d 899, 901-902. In the matter at issue, it is premature to reach the question of the motive to combine the elements, where the more immediate critical question is whether the combination of the references suggests the invention at all. There is no suggestion in Say or Owesen, either alone or in combination with each other, to combine their teachings. Further, as stated above, even if combined, these references fail to suggest all elements of the claimed invention.

Further, Applicants traverse the allegation that details of the amount of the “co-catalyst disposed with the catalyst” would be obvious to one having ordinary skill in the art because “adjustment of a known effective variable of a known or obvious process is within the capabilities of one having ordinary skill in the art.” Say discloses a series of “co-catalysts” for a photocatalyst. However, the intended reaction of Say does not include the formation of species produced by the present claimed invention. It is not obvious to specify amounts of the catalyst components in the present invention based on Say and ordinary skill in the art, when Say does not even suggest the reaction that is desired.

The Office Action states that Say discloses the elements of claim 4 by teaching that the catalytic supports can be made from porous materials. Applicants respectfully traverse. Say discloses that the catalytic supports can be made from porous materials in which the fluid can flow but teaches away from those materials in which the fluid can flow in which the porous cavities are greater than or equal to 1000 microns (Col. 9, Ins. 65-67). This teaching suggests the exclusion of those porous structures with large holes generally referred to as screens or meshes. Additionally, claim 4 is dependant on claim 1, and includes all of its required elements. As claim 1 is allowable for the reasons stated above, claim 4 is also allowable.

Similarly, claims 5, 6, and 8-13, discussed in the Office Action, all ultimately dependent on claim 1, and therefore include all of its required elements. As claim 1 is allowable for the reasons stated above, these claims are also allowable.

Claim 14, discussed in the Office Action, includes “wherein UV light and the target compound generate in the presence of water at least one oxidant selected from the group consisting of hydro-peroxides, super-oxide ions and hydroxyl radicals”, as discussed with respect to claim 1 above. This element is absent in both Say and Owesen. Claim 14, and claim 16 which depends from claim 14 and includes all of its required elements, are allowable over Say in combination with Owesen.

Applicants therefore respectfully request that the 35 USC §103(a) rejection of claims 1, 4-16, and 18-22 over Say in view of Owesen be withdrawn.

Claims 3 and 17 were rejected under 35 USC §103(a) as being unpatentable over Say as modified by Owesen as applied to claims 1, 4-16 and 18-22 above, and in further view of Heller et al. (US 5,616,532) and/or Saitou (US2001/0052237 A1). The Office Action indicates that the only difference between the instant claims and the references is “the recited target comprising a hydration compound of silica gel.” Applicants respectfully traverse.

Say and Owesen have been discussed above. Heller discloses photocatalyst compositions that may contain a non-oxidizable binder, and which may be used to degrade organic compounds that contact the composition. (See Heller, claims 1, 19, and 24.) Neither an apparatus nor a method is disclosed in Heller that generates at least one oxidant selected from the group of hydro-peroxides, super-oxide ions and hydroxyl radicals as called for in independent claims 1 and 14 from which claims 3 and 17 depend herein.

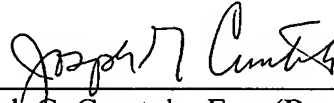
Saitou discloses an odor removing apparatus that contains photocatalytic beads made of a semiconducting metal oxide such as titanium oxide or zinc oxide on spherical silica gel. The combination of titanium dioxide with at least one selected from the group consisting of copper and silver is not taught or suggested as called for in independent claims 1 and 14 from which claims 3 and 17 depend herein.

Applicants therefore respectfully request that the 35 USC §103(a) rejection of claims 3 and 17 over Say in view of Owesen, and in further view of Heller and/or Saitou be withdrawn.

In view of the foregoing amendments and remarks, favorable action on the merits, including entry of all amendments, withdrawal of the 35 U.S.C. §§112 and 103(a) rejections, and allowance of claims 1 and 3-22, respectfully is requested.

Should the Examiner have any questions about the above amendments or remarks, the undersigned attorney would welcome a telephone call.

Respectfully submitted,



Joseph G. Curatolo, Esq. (Reg. No. 28,837)  
Attorney for Applicants  
Customer No. 23575  
CURATOLO SIDOTI Co., LPA  
24500 Center Ridge Road, Suite 280  
Cleveland, OH 44145  
Telephone: (440) 808-0011  
Facsimile: (440) 808-0657  
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Correspondence Address of Record:

Joshua L. Cohen, Esq. (Reg. No.: 34,307)  
Attorney of Record  
BOC, Inc.  
Legal Services – IP Department  
575 Mountain Avenue  
Murray Hill, NJ 07974-2064  
Telephone: (908) 771-6167  
Facsimile: (908) 771-6159